INLINE MONITORING OF PAD LOADING FOR CuCMP AND DEVELOPING AN ENDPOINT TECHNIQUE FOR CLEANING

Abstract of the Disclosure

A system of cleaning a CMP pad used for removing copper from a substrate, the system comprising an abrasive cleaning pad, a cleaning solution delivery system that delivers a cleaning solution, an analyzing system that monitors the characteristics of the cleaning solution optically and chemically, and a carriage that allows the analyzing system to monitor the cleaning solution at a plurality of locations on the CMP pad. The use of the abrasive cleaning pad and the cleaning solution removes contaminants from the CMP pad, and the contaminants are dissolved in the cleaning solution. By measuring the concentration of contaminants in the cleaning solution, the condition of the CMP pad can be monitored. To measure the concentration of the contaminants, changes in the refractive index and absorption of light in the cleaning solution are measured, wherein the refractive index and absorption depend on the concentration of the contaminants. The concentration of the contaminants in the cleaning solution is also measured chemically. Knowing the actual condition of the CMP pad during the cleaning process allows for improved condition of the CMP pad.

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